

CLAIMS

1. A method of for manufacture of a granulate containing at least one polyvinylacetal, characterized in that a polyvinylacetal containing composition is converted into the molten state and granulated coresponding to the desired particle sizes.
2. The method in accordance with claim 1, characterized in that the polyvinylacetal containing composition is converted into the molten state by heating to 100 to 340 °C.
3. The method in accordance with claim 1 or 2, characterized in that for conversion into the molten state a single or double screw extruder, a multiscrew kneader, a kneader, a rolling mill and/or a calender is employed.
4. The method in accordance with at least one of the preceding claims, characterized in that the granulate is manufactured by hot cutting down, cold cutting down or strand extrusion.
5. ~~The method in accordance with at least one of the preceding claims, characterized in that during conversion to the molten state a foaming agent is added.~~
6. The method in accordance with at least one of the preceding claims, characterized in that at least one part of the polyvinylacetal-containing composition is transfered via at least one side stream inlet into an extruder.
7. The method in accordance with claim 6, characterized in that at least 90 wt% of the polyvinylacetal-

containing composition is transferred via at least one side stream inlet into the extruder.

8. The method in accordance with claim 6 or 7, characterized in that the side stream inlet is cooled by means of which at least one part of the polyvinylacetal-containing composition is fed into the extruder.
9. The method in accordance with at least one of the preceding claims 1 to 5, characterized in that the region of the extruder from the main inlet up to a length of at least  $15 \cdot L/D$  is cooled.
10. The method in accordance with at least one of the preceding claims 1 to 5, characterized in that at least one of the screws is cooled.
11. The method in accordance with claim 10, characterized in that the screw is cooled over the range of the extruder from the main inlet up to a length of at least  $10 \cdot L/D$ .
12. The method in accordance with at least one of the preceding claims 8 through 11, characterized in that the temperature of the cooling means is less than or equal to the glass transition temperature of the composition, which contains at least one polyvinylacetal.
13. The method in accordance with one of the preceding claims, characterized in that the temperature in feeding of the polyvinylacetal-containing composition into the molten state is changed.
14. The method in accordance with claim 9, characterized in that the temperature during the conversion into the

molten state is increased.

15. The method in accordance with at least one of the preceding claims, characterized in that gaseous compounds, which arise upon conversion of the polyvinylacetal-containing composition into the molten state, are removed from the composition.
16. The method in accordance with claim 15, characterized in that a part of the gaseous compounds is removed via the main entry port of the extruder.
17. The method in accordance with at least one of the preceding claims 6 through 16, characterized in that the side stream input takes place by means of a dosing device with one or two screw-conveyors.
18. The method in accordance with at least one of the preceding claims 6 through 17 characterized in that the extruder screws diameter is larger than the screw diameter of the side stream dosing.
19. The method in accordance with at least one of the preceding claims 6 through 18 characterized in that the ratio of the screw diameter of the extruder to the screw diameter of the side stream dosing lies in the range from 1.1:1 to 10:1.
20. The method in accordance with at least one of the preceding claims 6 through 19 characterized in that the temperature in the region of the side stream dosing is less than or equal to the glass transition temperature of the composition which contains at least one polyvinylacetal.
21. The method in accordance with at least one of the

preceding claims characterized in that the composition for manufacture of granulate which contains the polyvinylsacetal, has a glass transition temperature greater than or equal to 0 °C.

22. The method in accordance with at least one of the preceding claims characterized in that the composition for manufacture of granulate which contains the polyvinylacetal, comprises 95 wt% polyvinylcetal.
23. The method in accordance with at least one of the preceding claims characterized in that the composition for manufacture of granulate, which contains the polyvinylacetal, contains at the most 2 wt% external softener.
24. The granulate obtainable according to a method in accordance with at least one of the preceding claims.
25. The granulate according to claim 24, characterized in that it has a bulk density in accordance with Standard 543 greater than 350 g/l.
26. The granulate in accordance with claim 24 or 25, characterized in that it has a  $D_{50}/D_{90}$  value greater than 0.70.
27. The granulate in accordance with at least one of claims 24 through 26, characterized in that in relation to the total weight it contains at least 50.0 wt% of at least one polyvinylacetal.
28. The granulate in accordance with claim 27, characterized in that the polyvinylacetal is obtainable through reaction of at least a polymer (A) with at least a compound (B) wherein the polymer (A) contains

a.) 1.0 to 100.0 wt% structural units of formula (1)



wherein R<sup>1</sup> denotes hydrogen or methyl,

b.) 0 to 99.0 wt% structural units of formula (2)



wherein R<sup>2</sup> represents hydrogen or an alkyl group with 1 to 6 carbon atoms,

c.) 0 to 70.0 wt% structural units of formula (3)



Wherein  $R^3$ ,  $R^4$ ,  $R^5$  and  $R^6$ , denote in each case independently of each other groups with a molecular weight in the range from 1 to 500 g/mol, wherein the compound (B) satisfies formula (4),



Wherein R<sup>7</sup> and R<sup>8</sup>, in each case independently of each other are hydrogen, COOH, an alkyl group with 6 to 12 carbon atoms and wherein M is a metal cation or if applicable an alkylated ammonium cation.

29. The granulate in accordance with at least one of claims 24 through 28, characterized in that it contains other additives.
30. The granulate in accordance with at least one of claims 24 through 29, characterized in that it furthermore contains fiber-strengthening materials.
31. The granulate in accordance with claim 30, characterized in that it contains short glass fibers, long glass fibers, aramid fibers and/or carbon fibers as fiber strengthening material.
32. The granulate in accordance with at least one of claims 24 through 31, characterized in that one solution prepared from the obtained granulate has a yellow value less than or equal to 3.
33. The granulate in accordance with at least one of claims 24 through 32, characterized in that the polvinylacetal has a glass transition temperature greater than or equal to 0 °C.
34. The use of a granulate according to at least one of claims 24 through 33 for preparation of a polyvinylacetal solution.
35. The use of a granulate according to at least one of claims 24 through 33 for preparation of a film.
36. The use of a granulate according to at least one of claims 24 through 33 for the manufacture of laminated safety glasses.
37. The use of a granulate according to at least one of claims 24 through 33 as binding agent.

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